

CLAIMS

1. A method for producing a virus whose propagation depends on cleavage of a viral protein by a protease, wherein the method comprises the step of producing the virus in the presence of:
 - 5 (i) a modified viral protein in which a cleavage sequence for the protease is changed to a cleavage sequence for an alternative protease, and (ii) the alternative protease, and wherein the produced virus comprises the modified viral protein that is cleaved but does not comprise a gene encoding the modified viral protein.
- 10 2. The method of claim 1, wherein the produced virus carries a gene encoding the relevant viral protein comprising a wild type cleavage sequence.
3. The method of claim 1, wherein the produced virus is a nontransmissible virus that lacks a gene encoding the relevant viral protein.
- 15 4. The method of claim 1, wherein the alternative protease is endogenously expressed in a cell producing the virus.
5. The method of claim 1, wherein the alternative protease is furin.
- 20 6. The method of claim 1, wherein the cleavage sequence for the alternative protease comprises Arg-Xaa-Lys/Arg-Arg.
7. The method of claim 1, wherein the cleavage sequence for the alternative protease comprises Arg-Arg-Arg-Arg.
- 25 8. The method of claim 1, wherein the virus is a minus-strand RNA virus.
9. The method of claim 8, wherein the minus-strand RNA virus is a Paramyxoviridae virus.
- 30 10. The method of claim 8, wherein the minus-strand RNA virus is Sendai virus.
11. A vector which encodes a modified viral protein in which a cleavage sequence for a protease of a viral protein in a virus whose propagation depends on cleavage of the viral protein by the protease is changed to a cleavage sequence for an alternative protease, wherein the vector is a viral or non-viral vector that cannot propagate in a cell producing the virus.
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12. The vector of claim 11, which is a plasmid.

13. The vector of claim 11, wherein the expression of the modified viral protein can be induced
5 by a recombinase.

14. The vector of claim 13, wherein the recombinase is Cre or Flp.

15. The vector of claim 11, wherein the alternative protease is expressed endogenously in the
10 cell producing the virus.

16. The vector of claim 11, wherein the alternative protease is furin.

17. The vector of claim 11, wherein the cleavage sequence for the alternative protease
15 comprises Arg-Xaa-Lys/Arg-Arg.

18. The vector of claim 11, wherein the cleavage sequence for the alternative protease
comprises Arg-Arg-Arg-Arg.

19. The vector of claim 11, wherein the viral protein is F protein of a minus-strand RNA virus.
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20. The vector of claim 19, wherein the minus-strand RNA virus is a Paramyxoviridae virus.

21. The vector of claim 19, wherein the minus-strand RNA virus is Sendai virus.
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22. A mammalian cell containing the vector of claim 11.

23. The cell of claim 22, which is a cell for producing a virus whose propagation depends on
cleavage of a viral protein by a protease.
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24. The cell of claim 22, wherein a gene encoding the modified viral protein is integrated into a
chromosome of the cell.

25. The cell of claim 22, which is a human cell.
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26. A modified virus of a virus whose propagation depends on cleavage of a viral protein by a

protease, wherein the modified virus comprises a modified viral protein in which a cleavage sequence of the viral protein for the protease is changed to a cleavage sequence for an alternative protease, and wherein the modified virus does not comprise a gene encoding the modified viral protein.

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27. The modified virus of claim 26, wherein a produced virus carries a gene encoding the relevant viral protein comprising a wild type cleavage sequence.

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28. The modified virus of claim 26, which is a nontransmissible virus lacking a gene encoding the relevant viral protein.

29. The modified virus of claim 26, wherein the alternative protease is expressed endogenously in a cell producing the virus.

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30. The modified virus of claim 26, wherein the alternative protease is furin.

31. The modified virus of claim 26, wherein the cleavage sequence for the alternative protease comprises Arg-Xaa-Lys/Arg-Arg.

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32. The modified virus of claim 26, wherein the cleavage sequence for the alternative protease comprises Arg-Arg-Arg-Arg.

33. The modified virus of claim 26, wherein the virus is a minus-strand RNA virus and the viral protein is F protein.

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34. The modified virus of claim 33, wherein the minus-strand RNA virus is a Paramyxoviridae virus.

35. The modified virus of claim 33, wherein the minus-strand RNA virus is Sendai virus.

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